

## AMENDED CLAIMS

Received by the International Bureau on 03 July 2003 (03.07.2003)  
original claims 1-9 replaced by amended claims 1-9 (claim 1 has been amended, 2-16  
unchanged).

1. A bubble cap comprising a cap with at least one slot and a riser, configured with a skirt height of at least 4 cm such that  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 7.5$ , and wherein the bubble cap is disposed such that a liquid fluid and a gaseous fluid flow co-currently upwardly in a space between the riser and the cap.
2. The bubble cap of claim 1, wherein  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 15$ .
3. The bubble cap of claim 1, wherein  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 22.5$ .
4. The bubble cap of claim 1, wherein  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 30$ .
5. A bubble cap comprising a cap with at least three slots and a riser, configured with a skirt height of at least 4 cm such that  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 7.5$ , and wherein the bubble cap is disposed such that a liquid fluid and a gaseous fluid flow co-currently upwardly in a space between the riser and the cap.
6. The bubble cap of claim 5, wherein  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 15$ .
7. The bubble cap of claim 5, wherein  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 22.5$ .
8. The bubble cap of Claim 5, wherein  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 30$ .
9. A bubble cap comprising a cap with at least five slots and a riser, configured with a skirt height of at least 4 cm such that  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 7.5$ , and wherein the bubble cap is disposed such that a liquid fluid and a gaseous fluid flow co-currently upwardly in a space between the riser and the cap.

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10. The bubble cap of claim 9, wherein  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 15$ .
11. The bubble cap of claim 9, wherein  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 22.5$ .
- 5 12. The bubble cap of claim 9, wherein  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 30$
13. A bubble cap comprising a cap with at least seven slots and a riser, configured with a skirt height of at least 4 cm such that  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 7.5$ , and disposed such that a liquid fluid and a gaseous
- 10 fluid flow co-currently upwardly in a space between the riser and the cap.
14. The bubble cap of claim 13, wherein  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 15$ .
15. The bubble cap of Claim 13, wherein  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 22.5$ .
- 15 16. The bubble cap of Claim 13, wherein  $1.5 * \text{Skirt Height (cm)} + [\text{Slot Length (cm)} - \text{Exposed Slot Height (cm)}] \geq 30$ .